

**INFORMATION FOR RESPONSIBLE FISHERIES: LIBRARIES AS
MEDIATORS:
SYNTHESIS OF THURSDAY 13 OCTOBER 2005 – “FISHERIES DAY” AND
CONTINUED COOPERATION BETWEEN IAMSLIC AND FAO**

Janet G. Webster

Hatfield Marine Science Center, Oregon State University
Newport, Oregon U.S.A.

Devin Bartley

Fisheries Department, Food and Agriculture Organization of the U.N.
Rome, Italy

ABSTRACT: One full day of the 2005 IAMSLIC Conference was dedicated to papers and discussion about fisheries issues. Given the setting at FAO, the Code of Conduct for Responsible Fisheries and the role of fisheries libraries in supporting its implementation were highlighted. The papers gave insight into fisheries information, the characteristics of a responsible fisheries library, and the needs of information users and producers. The following synthesizes ideas and issues described in the presentations, placing them within the context of the Code and recurring themes of the conference. Issues discussed include the following: the needs of users versus producers of information; the nature of information and libraries for responsible fisheries; geospatial information; the Information Commons; information as a development tool; and, technical disparity. Further collaboration between FAO and IAMSLIC is warranted.

KEYWORDS: Fisheries libraries, FAO Code of Conduct for Responsible Fisheries, Information Commons, Ontologies, professional training, information access, resources sharing

Introduction

2005 marked the tenth anniversary of the adoption of the FAO Code of Conduct for Responsible Fisheries and the first anniversary of the Memorandum of Understanding (MoU) between IAMSLIC and FAO. Both events supported holding the 2005 IAMSLIC conference at FAO Headquarters in Rome, Italy. They also provided the context for the Fisheries Day of the program as well as the backdrop for papers throughout the week. The papers gave insight into fisheries information, the characteristics of a responsible fisheries library, and the needs of information users and producers. The following synthesizes ideas and issues described in the presentations, placing them within the context of the Code and recurring themes of the conference. This synthesis leads to a review of the status of the Proposed Activities 2004/2005 which are part of the MoU. It

also briefly introduces some of the ideas and suggestions for future FAO-IAMSLIC cooperation which emerged from the Conference.

The Fisheries Day Papers

Sidney Holt started the conversation with a fascinating address on the role of information in his life as a fisheries scientist. He noted that “science is rooted in conversation” and that information needs change dramatically over time. He went on to identify three important connections for successful fisheries science: connections with people, connections through time, and connections through disciplines. Successful libraries make similar connections. Interestingly, he also noted that in order to “do science” one needs some peace and detachment from the flow of information in order to think. We work with our users to identify and satisfy their information needs. Libraries provide a continuum of information from the historic to the current. Strong fisheries libraries recognize and promote the linkages among disciplines to enhance the information resources used.

John Kurien provided thoughtful comments on the economics of fisheries focusing on the three A’s of food security: accessibility, affordability and absorbability. These same concepts apply to fisheries information and its effective use. He stressed the different types of information needed in today’s globalized world and that the information has to be put in the context of its intended use and its users. Information must be accessible to users both physically and intellectually. This implies multiple access points from the virtual connection to the very real library. Intellectual access suggests information written for audiences with different needs and perspectives as well as variable levels of literacy. Fisheries information should be affordable so it will be accessed and used. Finally, users absorb information then they recognize its utility and authenticity for the issues they seek to resolve.

Other morning speakers addressed more specific fisheries information issues. Rachele Oriente and Anton Immink both discussed the challenges of information outreach and education from very different perspectives. Oriente’s description of outreach to Pacific Island seafarers reinforced the concept of accessible and absorbable information; this highly mobile population responds to targeted messages on HIV/AIDS in appropriate language and delivered as they need. Immink challenged fisheries librarians to get out of the library and interact with information users where they work and live. His comments reflected the shift in the audience for some information and the related shift in formats for that information. He further stressed the need for connections with people to identify what information is needed and how best to disseminate it. Joan Parker’s review of the efficacy of ASFA as the finding tool of choice noted that many journals are not indexed and questioned our assumption about the “best” way to search for information in new or cross disciplinary fields in marine/fisheries sciences.

David Doulman and Eric Reynolds, both of the FAO Fisheries Department, reviewed the importance of the Code of Conduct to world wide fisheries management and the role of information in its successful implementation. Doulman identified lack of access to

appropriate and timely information as enduring constraints to the Code's implementation. Citing the erosion of extension services and the downgrading of national and regional information centers, he encouraged librarians to find long-term solutions and to consider looking beyond our traditional structure and open communication channels with new users. Reynolds continued the discussion by explaining the FishCode Programme and how it focuses on capacity building as a strategy to promote the implementation of the Code. Information partnerships are critical to these efforts. Again, the recurring themes of connections, accessibility and awareness of users emerged.

The afternoon session focused on specific case studies of libraries and fisheries information. Simon Wilkinson presented an innovative strategy for sharing aquaculture information across 16 countries in Southeast Asia and the Pacific using low-tech digital publishing and a variety of other media. He stated that information must be free in order to be used in many developing areas and made a convincing argument for free access to information as a means to involve communities of users and promote self-sufficiency in both aquaculture development and the use of information. He further stressed the importance of visitors contributing information and the importance of knowing users needs and browsing, i.e. search habits. Moses Ibeun succinctly described fisheries information issues in Nigeria including the lack of access to information, the high level of inter-disciplinary work without the requisite literature, and the need for consistent bibliographic control of what is produced so it can be shared internally and externally. Geoffrey Salanje reported on information sharing in Malawi, a small land-locked country highly dependent on fish for protein. The lack of a history of sharing coupled with a weak institutional structure means that librarians must build the needed structure with little financial support. The challenge is compounded by the lack of information expertise by users. Margaret Shaw emphasized that resource sharing strategies for fisheries libraries in Africa must have a strong component of African information, build on existing organizational capacity, and plan for a long-term presence. Currently, there is significant momentum given the FAO/South African Institute of Aquatic Biodiversity (SAIAB) Network Project, ODINAFRICA, AGORA, PERI and ASFA, but all involved must be committed. Access, effective dissemination and long-term change were the compelling issues of these presentations. All of these case studies touched on access across political, geographic, social, institutional, cultural, and economic barriers.

By the end of the Fisheries Day, it was clear that momentum exists for continued cooperation between IAMSLIC and FAO on fisheries information issues. To do so effectively, it is useful to review the missions of both organizations as well as the accomplishments under the existing MOU. Then, potential new areas of cooperation in addition to the ongoing current ones can be considered.

FAO Fisheries Department, the Code of Conduct for Responsible Fisheries and Information

The FAO Fisheries Department works to "facilitate and secure the long-term sustainable development and utilization of the world's fisheries and aquaculture" (FAO 2005). To

accomplish this, the staff is committed to providing technical assistance as requested. Such assistance includes “putting information within reach” and “bringing knowledge to the field” (FAO 2004). The collection, analysis, interpretation and dissemination of information are essential strategies for executing the Department’s mission.

The Code of Conduct for Responsible Fisheries provides a framework for addressing the Department’s mission. By addressing responsible management of the world’s fisheries, the Department recognizes the importance of fish for sustaining livelihoods, being available as food, and contributing to the global economy. Information plays a role in the successful implementation of the Code (Webster & Collins 2005); yet the role of libraries and librarians is less established.

IAMSLIC and Its Mission

IAMSLIC provides a forum where members can exchange ideas and explore issues related to the recording, retrieval and dissemination of knowledge and information in all aspects of aquatic and marine sciences and their allied disciplines (IAMSLIC 2002-2005). It is truly international with over 300 members coming from all regions of the world (Table 1). This enriches discussions while presenting challenges to better address the issues and needs of colleagues in developing countries.

Table 1: IAMSLIC Membership by Geographic Region (IAMSLIC Membership Committee, 2005)

By geographic region:	1999	2000	2001	2002	2003	2004	2004
Africa	23	18	26	39	44	45	37
Asia	11	10	8	6	3	12	18
Australia & New Zealand	10	10	9	9	9	7	27
Canada	19	20	20	21	18	17	15
Caribbean & Bermuda	10	11	10	6	5	3	4
Central America & MX	6	6	5	6	10	12	14
Europe	50	56	53	53	54	55	70
Near East	2	2	2	2	2	2	2
South America	4	5	5	5	14	18	20
Pacific Islands	18	16	16	7	7	8	8
U.S.A.	143	153	148	141	127	120	131
Total Membership	296	307	301	295	293	301	348

Members of IAMSLIC work in libraries ranging from large marine and oceanographic institutes to small field station libraries. Their mandates vary, and this is reflected in the size and focus of the collections as well as the institutional support. IAMSLIC members share an interest in the marine and aquatic disciplines with many others working with fish-related topics, although fewer are focused on fisheries and fisheries management.

Crafting compelling projects and initiatives that address FAO's mission and the interests of our members is challenging, but productive.

Review of Joint Activities for 2004-05

The MoU between IAMSILIC and FAO outlines three objectives:

- To strengthen the capacity of fisheries and aquatic sciences institutions to organize, access and disseminate information in support of research, management and development in the fisheries sector.
- To support the development and improvement of information bases and information management tools specifically for fisheries and the aquatic sciences and to promote their accessibility to all stakeholders.
- To support global, regional and local networks for information sharing and the use of appropriate technologies which would facilitate improved access to timely and relevant fisheries and aquatic science information.

The MoU includes an Annex which lists proposed joint activities for the current biennium. In 2004/2005 some of these activities are discrete with set timelines while others are ongoing. Progress has been made on all proposed activities and details of the activities can be found in Appendix 1.

1. *Sabbatical period at FAO headquarters under the Partnership Programme for Professor Janet Webster, Oregon State University, in collaboration with IAMSILIC to elaborate and document strategies for improving the capture, dissemination, sharing and preservation of fisheries information resources.*
2. *Improved coverage of and access to the metadata of fisheries and aquatic science publications from developing countries through increased coverage in the Aquatic Sciences and Fisheries Abstracts (ASFA) and in the IAMSILIC web portal.*
3. *Improved access to full text fisheries and aquatic science publications through development of local and regional repositories, better linkage in bibliographic databases and promotion of open access.*
4. *Improved coverage of and access to fisheries publications from developing countries in the IAMSILIC Z39.50 distributed library system and development of regional resources sharing mechanisms.*
5. *IAMSILIC International Conferences as venues for discussion of issues and strategies to improve access to fisheries information*
6. *The preparation of guidelines on compatibility standards for open archives of fisheries and aquatic science digital publications.*
7. *IAMSILIC to provide expert user feedback to the FAO ASFA Secretariat regarding the database and user requirements.*

Issues and Challenges for Fisheries Libraries

This review of our joint activities indicates that IAMSILIC and FAO can successfully cooperate to develop strategies to enhance the access to, storage of and utility of

fisheries information. Implementation of the Code of Conduct for Responsible Fisheries provides a concrete focus for interaction; yet, other issues and challenges emerged during the 2005 Conference suggesting additional foci for interaction and mutual cooperation.

- Needs of Users versus Producers

Information can be approached from two quite different perspectives – that of the user and that of the producer. The fishery library mediates between these two balancing the needs of both. Users want information in order to create knowledge, resolve problems and help the decision-making process. They want information that has value and authority. Timeliness is also important, both in delivery and in currency of the actual information. Producers add value to information through packaging, indexing and delivery mechanisms. They are concerned with producing a useful product that is cost effective. Format, quality and demand all factor into how and what they produce. Libraries and information providers can get caught between the needs of users and those of producers given budgets, delivery infrastructure and institutional support. We recognize the friction and can work constructively to inform producers of usability and accessibility issues.

- Nature of Information and Libraries for Responsible Fisheries

IAMSLIC members are experts when dealing with scientific information and recognize the variety of sub-disciplines that together make up marine and aquatic science. Yet, responsible fisheries information has its own identity and libraries involved with it have a mandate to collect and provide access across a broad information landscape. Its scale is local to global. It covers a breadth of disciplines including science, culture and economics. Responsible fisheries information has depth with a reliance on long time series and historical records as well as the most current data. Finally, the sources used are diverse and authority diffuse; traditional knowledge occasionally vies with scientific observations, yet both information sources have value in fisheries management.

Consequently, a library charged with supporting work on responsible fisheries and fisheries management in general manages a diversity of information products and formats. The grey literature must be identified and collected. The library needs to be technically and professionally networked to ensure access to information for its users and access to training and new ideas for its staff. The librarian in charge will succeed if flexible in approach and proactive in seeking support, new ideas and partnerships.

- Geospatial Information

Place and time are critical elements of information for fisheries management. Identifying where and when data were collected has traditionally been documented; yet new tools allow for greater precision and broader interpretation. For libraries to go beyond maps to geographic information systems demands technical sophistication in addition to the willingness to expand. Storing and accessing a variety of data that

are geo-referenced are not simple tasks, but are manageable if standards and expertise are shared. Again, users expect geo-referenced information: scientists share data within similar habitats; resource managers need the geospatial element for improved planning and implementation of strategies; and users respond to the visual cues of their physical landscape. Fisheries libraries need to respond to the need.

- Information Commons

The first day of the conference, Charlotte Hess initiated the conversation on this issue. She described the parallel trends of open and enclosed access to information. Others elaborated on the challenges of opening access to information through institutional repositories and consortial projects. Sustaining this emerging information commons is a shared responsibility yet fraught with issues such as funding, authority, copyright and technical standards. FAO and IAMSLIC are exploring the concept of the Aquatic Commons as a collaborative digital repository. Additional thought on how FAO and IAMSLIC can work to improve the health of the information commons is a worthwhile endeavor.

Equitable access to information is part of the Information Commons. One aspect of this is enhancing access through more comprehensive searching/finding tools. Traditionally, indices rely on established thesauri built and maintained by involved user communities. The ASFA Thesaurus is one example that has worked well for years. Yet, users now search using natural language rather than controlled vocabularies and shared concepts, and expect relevant results. Consequently, fisheries librarians are considering a new generation of searching tools. Ontologies are one approach to expanding thesauri so languages can be bridged and concepts expanded. They are expensive to develop, yet are one option to better and more flexible searching tools.

- Information as a Development Tool

While all are welcome to use the Information Commons, not all choose to or are able to do so. Hence, we need to be proactive and ensure that fisheries information addresses the needs of traditional and non-traditional audiences. This suggests varied formats, appropriate language and style, and new dissemination methods (or using existing methods differently). While many librarians teach in some manner, fewer are active in outreach beyond their institution or primary user group. FAO is committed to getting information to the field where it can be used and transformed into knowledge. IAMSLIC is also committed to getting our members information that helps them build local capacity to better serve their communities. Information is power, and collaboration in the area of information outreach has intriguing possibilities.

- Technical Disparity

The Digital Divide remains, yet perhaps is shrinking. IAMSLIC examined the Divide at its 2002 conference held in Mazatlan, Mexico and found many examples of

strategies to bridge the gap (Markham and Duda, 2003). However, members still describe technical disparities such as the speed of internet access and the lack of technical expertise among library staff. FAO and IAMSILIC cannot fix technical infrastructures but we can highlight strategies for improving them and support non-technical solutions to information access.

Suggestions for Addressing the Issues and Challenges

To some the issues discussed throughout the week would be daunting. They cause IAMSILIC members to think deeply about how they can be effective as an organization and how to collaborate successfully with FAO. Conference participants offered suggestions at two sessions. Their ideas range from specific projects to broader initiatives, and are grouped below.

1. Building Capacity

- a. Training librarians and library staff can be addressed by providing internships at IAMSILIC libraries and exchange opportunities so people learn or refresh skills. At a higher level, IAMSILIC can advocate for funding of library school scholarships for candidates from developing countries.
- b. Mentoring is another mechanism for capacity building as it engages both the mentor and the mentee, and can be done at a distance. The IAMSILIC Membership Committee should encourage formal and informal activities. Steps could include expanding the membership database to include expertise and maintaining a roster of professionals interested in assignments or projects.
- c. Developing regional capacity is another approach. The FAO/SAIAB Network is an example of this. IAMSILIC regional groups work regionally to address issues and disparities. Recruiting new library school graduate students regionally may be a strategy to encourage the next generation of fisheries librarians.
- d. Some IAMSILIC members continue to pursue an integrated library system. Those with expertise in Open Source systems could share their knowledge.

2. Sharing Resources

- a. Mechanisms for resource sharing should be reviewed for utility and cost, and recommendations made to ensure that it remains sustainable.
- b. The changing role of physical collections suggests that the deposition of redundant materials among IAMSILIC libraries needs discussion. Shipping irrelevant materials and those available digitally may be a poor solution. Yet, if needed, shipping options should be readily accessible via the IAMSILIC web site.

3. Enhancing Access

- a. As ASFA remains a useful tool for many IAMSILIC members, it is time to review its coverage, especially related to fisheries management and the role of social science and development information in fisheries management. An audit of input by some of the major partners may also be warranted.
- b. Capturing the literature of developing countries is more feasible with the advent of repositories. A joint repository among IOC, FAO and IAMSILIC is a promising approach. NACA would be a good partner so that information can be mutually harvested. Additionally, small, unique databases exist throughout IAMSILIC libraries. These may be captured and better accessed through a shared repository or by working with NISC.

4. Developing Partnerships

- a. Some partnerships may be specific projects such as DFID's current need for help in Africa and SE Asia on fisheries information outreach. Links on IAMSILIC web site to interested partner sites would be helpful.
- b. Other partnerships may focus on shared areas of interest such as responsible fisheries. We could look for ways to work with NGOs such as ICSF to focus on providing information in support of implementing the Code of Conduct and then monitoring responses at the local level.
- c. Finally, we can continue partnerships within IAMSILIC that encourage consortial purchases of journals and software.

Developing Joint FAO/IAMSILIC Activities 2006-2007

Given the success of the current MoU between FAO and IAMSILIC, we suggest continued collaboration on the general activities outlined in the 2004-2005 MoU. A working group from FAO and IAMSILIC may develop more specific actions and projects as appropriate using the six activities listed below. The issues discussed throughout the 2005 IAMSILIC Conference provide a rich context for working together to enhance access to information needed for responsible fisheries.

1. *Improve coverage of and access to the metadata of fisheries and aquatic science publications from developing countries through increased coverage in the Aquatic Sciences and Fisheries Abstracts (ASFA).*
2. *Improve coverage of and access to fisheries publications from developing countries in the IAMSILIC Z39.50 distributed library system and development of regional resources sharing mechanisms.*
3. *Improve access to full text fisheries and aquatic science publications through development of local and regional repositories, better linkage in bibliographic databases and promotion of open access.*

4. *Increase awareness and use of guidelines on compatibility standards for open archives of fisheries and aquatic science digital publications.*
5. *Continue expert user feedback from IAMSLIC to the FAO ASFA Secretariat regarding the database and user requirements.*
6. *Increase learning and collaboration opportunities for current and potential fisheries information workers.*

References:

- FAO. 2004a. *About Us*. Available from:
http://www.fao.org/UNFAO/about/index_en.html
- FAO. 2004b. *Report of and papers presented at the regional workshop on networking for improved access to fisheries and aquaculture information in Africa. Grahamstown, South Africa, 3-7 November 2003*. FAO Fisheries Report No. 740. Food and Agriculture Organization of the U.N.: Rome. [Online]. Available:
<ftp://ftp.fao.org/docrep/fao/007/y5519b/y5519b00.pdf>
- FAO. Fisheries Department. 2005. *Mission Statement*. [Online]. Available:
<http://www.fao.org/fi/struct/mission/english.asp>
- IAMSLIC. 2002-2005, *Bylaws*. [Online]. Available: <http://www.iamslc.org/>
- IAMSLIC Membership Committee. 2005. *Annual IAMSLIC Membership Committee Report*. Presented at the 31st Annual IAMSLIC Conference, Rome, Italy, October, 2005.
- Markham, J.W. & A.L. Duda (eds.). 2003. *Bridging the Digital Divide: proceedings of the 28th Annual Conference: Mazatlan, Mexico, October 6 - 11*. Fort Pierce, FL: International Association of Aquatic and Marine Science Libraries and Information Centers. Available:
<http://www.vims.edu/GreyLit/IAMSLIC/Proceedings.html#28th>
- Webster, Janet G. and Jean Collins. 2005. *Fisheries Information in Developing Countries: Support to the Implementation of the 1995 FAO Code of Conduct for Responsible Fisheries*. FAO Fisheries Circular No. 1006. Food and Agriculture Organization of the U.N.: Rome. [Online]. Available:
<http://hdl.handle.net/1957/222>

APPENDIX 1

FAO/IAMSLIC Joint Activities for 2004/2005

1. *Sabbatical period at FAO headquarters under the Partnership Programme for Professor Janet Webster, Oregon State University, in collaboration with*

IAMSLIC to elaborate and document strategies for improving the capture, dissemination, sharing and preservation of fisheries information resources.

- a. Professor Webster worked with the FAO Fisheries Department and Library during March – July 2004 investigating the nature of information needed to implement the Code of Conduct for Responsible Fisheries and proposing strategies for improving access to fisheries information. The results were published as *FAO Fisheries Circular no. 1006* (Webster and Collins 2005).
 - b. They also co-presented their work at the IAMSLIC Conference held in Hobart, Australia in October 2004.
2. *Improved coverage of and access to the metadata of fisheries and aquatic science publications from developing countries through increased coverage in the Aquatic Sciences and Fisheries Abstracts (ASFA) and in the IAMSLIC web portal.*
 - a. Several new ASFA national partners and one international partner were recruited as a result of contacts made at IAMSLIC conferences and interactions with IAMSLIC members. These include the Institut Mauritanien de Recherches Océanographiques et des Pêches, the Direction des Pêches Maritimes (Senegal) and the Secretariat of the Pacific Community.
3. *Improved access to full text fisheries and aquatic science publications through development of local and regional repositories, better linkage in bibliographic databases and promotion of open access.*
 - a. *FAO Fisheries Circular no. 1006* proposes repositories as one means to expand access to full text of fisheries documents at the institutions of IAMSLIC members.
 - b. At the 2005 ASFA Board Meeting, IAMSLIC members Stephanie Haas, Pauline Simpson and Steve Watkins presented to the ASFA Board a proposal for the establishment of the *Aquatic Commons*, a collaborative E-Prints repository to store and provide access to the digital output of IAMSLIC institutions which do not have the local infrastructure to establish their own. A formal proposal has been submitted for further discussion.
4. *Improved coverage of and access to fisheries publications from developing countries in the IAMSLIC Z39.50 distributed library system and development of regional resources sharing mechanisms.*
 - a. Barb Butler, chair of IAMSLIC's Membership Committee, described the IAMSLIC Z39.50 Distributed Library to the ASFA Board during the 2005 ASFA Board Meeting. ASFA Board members are encouraged to join IAMSLIC and participate in the resource sharing activities.
 - b. The use of the IAMSLIC Z39.50 Distributed Library is promoted by IAMSLIC through its Membership and Resource Sharing

Committees and at presentations at conferences and workshops of both IAMSILIC and FAO.

- c. The holdings of SAIAB (South Africa), KMFRI (Kenya), NIFFR (Nigeria) and several Latin American libraries holdings have been added to the IAMSILIC Z39.50 Distributed Library. The creation of *The Listado Unido de Publicaciones Periodicas (Latin American Union List of Marine and Aquatic Serials)* in November 2005 has tripled the percentage of requests filled by Latin American libraries. A similar list is in progress for the Africa Regional Group.
 - d. The collaboration between FAO, SAIAB and fisheries libraries in several African countries has promoted regional collaboration and participation in the IAMSILIC Z39.50 Distributed Library (FAO 2004b).
5. *IAMSILIC International Conferences as venues for discussion of issues and strategies to improve access to fisheries information*
 - a. FAO was well represented at the 30th Annual Conference in Hobart, Australia, September 5-9, 2004 as Jean Collins presented on information and the Code of Conduct while Richard Pepe updated IAMSILIC members on developments with ASFA. Collaboration among fisheries and aquatic science libraries in the Asia-Pacific region was promoted and potential ASFA partners identified.
 - b. The FAO Fisheries Department invited IAMSILIC to hold the 31st Annual Conference in Rome, Italy. Participants addressed the theme of "Information for Responsible Fisheries: Libraries as Mediators".
 6. *The preparation of guidelines on compatibility standards for open archives of fisheries and aquatic science digital publications.*
 - a. Suggested digitization guidelines were published in the *FAO Fisheries Circular no.1006*.
 - b. FAO and NACA in collaboration with IAMSILIC members are preparing a publication on the development of guidelines for the dissemination, accessibility and preservation of digital fisheries and aquaculture publications from developing countries.
 7. *IAMSILIC to provide expert user feedback to the FAO ASFA Secretariat regarding the database and user requirements.*
 - a. Amelia Chavez-Comparan, Centro de Investigacion Scientifica y de Educaci3n Superior de Ensenada (Mexico), is IAMSILIC's contact to provide expert user feedback to the ASFA Secretariat on changes to the ASFA database.